Food and Agriculture Organization of the United Nations

Case study

Papua New Guinea

National forest monitoring system provides better data, and enhances capacity in Papua New Guinea

Enhancing land use planning and monitoring of forest-related interventions through transparent and accurate forest data and information for climate action

Context

Located in the South Pacific region, Papua New Guinea comprises the eastern portion of the New Guinea Island, the largest tropical island in the world. The island contains the third-largest tropical rainforest after Amazon Basin and Congo Basin, and is a hotspot for biodiversity and endemism. About 97 percent of land in Papua New Guinea is under customary tenure. Forests belong to the people, and the majority of the population relies directly on the ecosystem services provided by the forests for their livelihoods. The forest industry is one of the major sources of national revenue and jobs in the formal sector. About 78 percent of the country is still covered by forest, but deforestation and forest degradation have been increasing in recent years. The primary driver of deforestation is subsistence agriculture and agriculture plantation- mainly producing oil palm. Commercial logging is the primary driver of forest degradation. Increased development pressure on forests has resulted from the country's rapidly growing population and fast-growing economies.

In 2005, together with Costa Rica, Papua New Guinea proposed the concept of reducing emissions from deforestation and forest degradation (REDD+) to the United Nations Framework Convention on Climate Change (UNFCCC). Since then, the country has been working on preparing for REDD+ and setting up its national forest monitoring system (NFMS). Accurate information regarding forest status and change is essential for sustainable management of the nation's forest.

Challanges

A significant challenge of Papua New Guinea's NFMS is the lack of forest inventory data to estimate forest carbon in the five carbon pools, in different forest types and status (different levels of disturbances), and to monitor biodiversity. Extensive forests, rugged terrain, limited road connection and infrastructure, limited resources and capacity, lengthy process for obtaining land owner consensus for accessing forest, high security risk and harsh climate and natural conditions make the forest inventory in Papua New Guinea extremely expensive and time consuming. Lack of funding is the most limiting factor for the national forest inventory (NFI) implementation.

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Actors and stakeholders

The Climate Change and Development Authority (CCDA) and the Papua New Guinea Forest Authority (PNGFA) are the core-implementing partners that jointly developed the country's NFMS. Other government agencies and private actors, such as the Conservation and Environmental Protection Authority, Department of Agriculture and Livestock, Mineral Resources Authority, National Statistics Office, and the Palm Oil Council, are responsible for providing all of the necessary data and information needed for climate change monitoring and reporting. CCDA is responsible for coordinating the monitoring and reporting process. The capacity on forest monitoring has significantly improved in recent years with advances made due to technical and financial support from the Food and Agriculture Organization of the United Nations (FAO) under the UN-REDD Programme, the European Union funded national forest inventory project, Forest Carbon Partnership Fund, Global Environment Facility and the Japan International Cooperation Agency.

Objectives

- Provide free access, transparent and timely delivery of all relevant data and information on forest and land use to all stakeholders in a consistent, accurate and verifiable way and in line with NFMS Methodological Guidance provided by the UNFCCC.
- Accurately estimate greenhouse gas (GHG) emissions from the land-use change and forestry sector, meeting the requirements of Tier 3 emission factors, as prescribed by the Intergovernmental Panel on Climate Change for REDD+ measurement, reporting and verification (MRV).
- Monitor national policies, strategies and measures to meet forest-related targets; address climate change and effectively respond to the county's needs as well as its pledges under the Paris Agreement, such as national determined contributions (NDC).
- Provide precise and comprehensive annual land use change information for enhancing land use planning, and support informed decision-making.

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Impact

- Based on NFI data, Papua New Guinea submitted its forest reference level (FRL) to the UNFCCC in 2017 and also prepared its National REDD+ Strategy. In 2019, the country submitted its first Biennial Update Report, including the REDD+ Technical Annex, using NFMS data.
- Papua New Guinea submitted its first NDC in 2015 but due to lack of data on GHG emissions, the country was not able to include quantitative climate change mitigation targets. With the establishment of the NFMS, Papua New Guinea was able to project GHG emissions and estimate the potential emission reductions associated with various measures that address different drivers of deforestation and forest degradation. Accurate data and strengthening GHG monitoring capacity enable the government to set ambitious targets, which are reported in the Second Enhanced NDC (2020) and prepare the roadmap to achieve them.
- Papua New Guinea achieved all four REDD+ design elements defined under the Warsaw Framework. Such achievements make the country eligible for the Global Climate Fund's Results Based Payment Pilot Programme, and the country is currently preparing their proposal with support from FAO.
- Papua New Guinea's REDD+ and Forest Monitoring Web Portal provides information far beyond REDD+ requirements. It contains the spatial information of forest, mining, agriculture, demography, water resources, soil fertility, conservation, biodiversity, infrastructure, value chain and many more. It is considered the most comprehensive web GIS-based platform for Papua New Guinea. The Web Portal is utilized as a comprehensive national monitoring, analysis, and decision-making tool.

Testimony

Dr. Ruth Turia, former Director of Policy and Planning Directorate, Papua New Guinea Forest Authority has stated that:

> *"Many female and male forestry officers and forest researchers across the country have been participating in the NFI; both remote sensing-based and the field assessment. Papua New Guinea has improved the capacity in forest monitoring and the understanding of the forest status and historical change significantly during the last decade. The information generated from the NFI has been contributing well for Papua New Guinea's policy formulation on climate change and forestry, such as National REDD+ Strategy and NDCs."*

Replicability and upscaling

As part of the NFI activities, field protocols were carefully documented and manuals were produced, enabling transparency as well as replicability of the approaches. Given the country's expertise and vast experience in forest monitoring, as well as the facilities offered in the NFI Office, PNGFA plans to share knowledge with other countries in the region and beyond.

Success factors

- **Integration of and consistency with existing information sources**: The NFMS builds on the existing systems for land use and forest resource mapping in Papua New Guinea, including TerraPNG, a system for wall to wall land use mapping used with PNG's GHG reporting managed by CCDA, and the Forest Resource Information Management System which is used by PNGFA to manage information on commercial forestry operations within the country. The country's NFMS also integrates global data sets, such as the Global Forest Watch, as part of quality assurance/quality control protocols. Manual assessment enables the classification of complex land use and far more detailed land use subcategories compared to the automated assessment using computer algorism. On the other hand, automated assessment data can be used to check human assessment errors. Papua New Guinea's NFMS, which integrates a number of domestic and global information sources, provides the highest standard of accuracy.
- **Country ownership and responsibility**: The NFI's methodology and approach were built on the methods and capacity developed within the PNGFA over a number of years. Many PNGFA officers across the country are involved in various components of the NFMS. Also, the NFMS has been updated and maintained by Papua New Guinea, collaborating with key stakeholders for data sharing and utilization. As a result, the web-portal is updated each time data providers update their information.
- **Participatory discussion process**: A comprehensive consultation process has been conducted for the development Papua New Guinea's NFMS, GHG inventory and FRL for REDD+, including participants from various cross sectors to ensure that there was fair representation from government, non-government, international agencies, private and local communities.

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Papua New Guinea's REDD+ and Forest Monitoring Web-Portal: http://png-nfms.org/portal/

Papua New Guinea's REDD+ website: https://pngreddplus.org/

Papua New Guinea's First Biennial Update Report to the UNFCCC: https://bit.ly/3uTUqCD

For more information, please contact: info@ccda.gov.pg

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